29 JUL 2005

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known Application Number 10/532,907 Filing Date April 27, 2005 First Named Inventor Nathan T. Hayes Art Unit Examiner Name N/A Attorney Docket Number 33072/101/101

				DOCUMENTS	
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
1		Number-Kind Code ^{2 (# known)}		 	riguies Appear
IN		^{US-} 5,239,624	08-24-93	Cook et al.	
KN		^{US-} 5,579,455	11-26-96	Greene et al.	
VN		^{US-} 6,219,667 B1	04-17-01	Lu et al.	
Kn		^{US-} 6,772,136 B2	08-03-04	Kant et al.	
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Examiner Initials*	Cite No.1	Foreign Patent Document	Publication	Name of Patentee or	Pages, Columns, Lines,
IIIUBIS	140.	Country Code ³ "Number ⁴ "Kind Code ³ (if known)	Date MM-DD-YYYY	Applicant of Cited Document	Where Relevant Passages Or Relevant Figures Appear
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STATEMENT BY APPLICANT

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Application Number	10/532,907				
Filing Date	April 27, 2005				
First Named Inventor	Nathan T. Hayes				
Art Unit	N/A				
Examiner Name	N/A				
Attorney Docket Number	33072/101/101	$\overline{}$			

		NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹				
Kw		ANDREW S. GLASSNER, "An Introduction to Ray Tracing", Academic Press, 1993			
		HELMUT RATSCHEK & JON ROKNE, "SCCI-Hybrid Methods for 2D Curve Tracing", International Journal of Image and Graphics, Vol. 5, No. 3 (2005) p.447-479			
		HEIDRICH, WOLFGANG, PHILIPP SLUSALLEK & HANS-PERTER SEIDEL, "Sampling Procedural Shaders Using Affine Arithmetic." ACM Transactions on Graphics 17.3 (Jul. 1998): 158-176.			
		SUNG, KELVIN, ANDREW PERACE & CHANGYAW WANG, "Spatial-Temporal Antialiasing." IEEE Transactions on Visualization and Computer Graphics 8.2 (Apr Jun. 2002): 144-153.			
		ENGER, WOLFGANG, "Interval Ray Tracing – a divide and conquer strategy for realistic computer graphics." The Visual Computer 9.2 (1992): 91-104.			
		DUFF, TOM, "Interval Arithmetic and Recursive Subdivision for Implicit and Constructive Solid Geometry." Computer Graphics 26.2 (Jul. 1992): 131-138.			
		DE CUSATIS JUNIOR, DE FIGUEIREDO, & GATTASS, "Interval Methods for Ray Casting Implicit Surfaces with Affine Arithmetic", Department of Computer Science & LNCC-Laboratorio National de Computação Científica			
	,	CAPRANI, OLE, ET AL. "Robust and Efficient Ray Intersection of Implicit Surfaces." Reliable Computing 6.1 (Feb. 2000): 9-21.			
		ALEXANDRE MEYER & EMMANUEL CECCHET, "Stingray: Cone tracing using a software DSM for SCI clusters", iMAGIS - GRAVIR/IMAG-SIRAC, France			
Ku		AMANATIDES, JOHN. "Ray Tracing with Cones." Computer Graphics 18.3 (Jul. 1984): 129-135.			

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STATEMENT BY APPLICANT				First Named Inventor	Nathan T. Hayes	
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Sheet	3	of	3	Attorney Docket Number	33072/101/101	

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Initials*	No.1	the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²		
kw	LUIZ HENRIQUE DE FIGUEIREDO, "Surface Intersection Using Affine Arithmetic", Compute Systems Group, Department of Computer Science, Unitversity of Waterloo				
		QUINN O. SNELL, "Parallel hierarchical global illumination", Major Professor: John L. Gustrafson lowa State University, p. 1-77			
		EUGENE A. MORELLI, "Global Nonlinear Parametric Modeling with Application to F-16 Aerodynamics", Dynamics and Control Branch, NASA Langley Research Center, Hampton, Virginia, p. 1-5			
		COMBA & STOLFI, "Affine Arithmetic and its Applications to Computer Graphics", Computer Graphics Laboratory & Computer Science Department, p. 1-10, 1993			
		GENETTI, GORDON & WILLIAMS, "Adaptive Supersampling in Object Space Using Pyramidal Rays" Computer Graphics forum, Volume 17 (1998), number 1 pp. 29-54			
		HAEBERLI, PAUL & KURT AKELEY. "The Accumulation Buffer: Hardware Support for High-Quality Rendering." Computer Graphics 24.4 (Aug. 1990): 309-318.			
		BLINN, JIM. "Jim Blinn's Corner: Notation, Notation, Notation." Morgan Kaufmann, 2002.			
		DUTRE, PHILIP, PHILIPPE BEKAERT & KAVITA BALA. "Advanced Global Illumination." AK Peters, 2003.			
		JAULIN, LUC, ET AL. "Applied Interval Analysis." Springer Verlag, 2001.			
Kn		APODACA, ANTHONY & LARRY GRITZ. "Advanced RenderMan: Creating CGI for Motion Pictures." Morgan Kaufmann, 1999.			

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Signature	Suchus	nxwyen	Considered	11-10-06

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